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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,744	09/11/2006	Bartlomiej Jan Pawlak	NL040280	9792

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NXP, B.V.
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EXAMINER

FOURSON III, GEORGE R

ART UNIT	PAPER NUMBER
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2823

NOTIFICATION DATE	DELIVERY MODE
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07/08/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No. 10/598,744	Applicant(s) PAWLAK, BARTLOMIEJ JAN	
	Examiner George Fourson	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim 6 is objected to because of the following informalities: In claim 6, “comprising” should be - - consisting of - - . Appropriate correction is required.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keys et al 2004/0235280.

It is noted that in the instant claims “dopant” is used to encompass non-conductive impurities. Also, “dopant atoms” and “dopant ions” are used interchangeably where in ion implantation processes it is ions that are implanted. The following rejection is predicated on these uses.

Keys et al discloses formation of a p-type or n-type transistor [0035, figures 5A and 5B and accompanying description] including implanting Si or Ge ions to amorphize a portion of an n-doped substrate region [0024], implanting F temporary ions [0025-0026], annealing at 400-800°C for 5-120 seconds [0028] then implanting boron ions [0027]. See figure 3. The recited annealing temperature range overlaps the disclosed range.

The claims do not require the heat treatment in the range of 500-800°C to be performed after the introduction of the dopant atoms. With respect to claim 3, the claim

merely labels portions of the heat treatment as “a heat treatment” and “a further heat treatment”. With respect to claim 4, LDD formation is shown in figures 5A and 5B.

With respect to claim 7, there is overlap between the recited duration and that disclosed [0028].

Applicant's arguments with respect to the above rejection are addressed in the statement of the rejection above.

Claims 3 and 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keys et al 2004/0235280 as applied to claims 1-9 above, and further in view of either Wu et al 4584026, of record.

With respect to claim 3, in the event that claim 3 requires separate heat treatments, the following rejection is applied.

Keys et al does not disclose limiting the process to temperatures lower than 800°C or performing a heat treatment below 800°C after the dopant atom introduction.

Wu et al discloses activation of boron implanted silicon following fluorine implantation at temperatures lower than 800°C to reduce dopant diffusion (col.3, lines 14-17 and 47-62). It would have been obvious to one of ordinary skill in the art to combine the teachings of Keys et al and Wu et al to enable the activation step of Keys et al to be performed according to the teachings of Wu et al because in such a process the process of Wu et al would be used for its disclosed intended purpose and therefor

one of ordinary skill in the art would have had a reasonable expectation of success that the process would be suitable in achieving the predictable result of the activation disclosed by Keys et al and furthermore to reduce dopant diffusion as stated above.

Claims 3,10,12,13 and 15-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Keys et 2004/0235280 as applied to claims 1-9 above, and further in view of Downey et al.

With respect to claim 3, in the event that claim 3 requires separate heat treatments, the following rejection is applied.

Keys et al does not disclose limiting the process to temperatures lower than 800°C or performing a heat treatment below 800°C after the dopant atom introduction.

Downey et al discloses a 550-800°C anneal in addition to a higher temperature anneal in activation of boron implanted silicon following fluorine implantation to remove residual damage and remove fluorine (col.6, lines 24-33).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Keys et al and Downey et al to include the further heat treatment of Downey et al in the process of Keys et al for the purpose of removing residual damage and removing fluorine (col.6, lines 24-33).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Fourson whose telephone number is (571)272-1860272-1860. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith, can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/George Fourson/
Primary Examiner, Art Unit 2823

GFourson
July 3, 2008